Risk Management of Future Foreign Conflict Intervention

BY GORDON WOO

Risk is a concept that is universal in its common everyday usage. It is simply an expression of the potential for a given action to lead to a loss of some kind. But risk also has a specific and precise technical definition among professional risk analysts. For this community, risk is the combination of the probability of an event and its consequences. Awareness of the consequences of various actions or events is patently necessary for informed decisionmaking on public safety. If there is a core meltdown of a nuclear reactor, there will be a massive release of radioactivity. Even if this were contained within the nuclear plant, the public trauma would put pressure on shutting down the nuclear industry, as has happened in Japan. This key paradigm, which has been highlighted in the risk literature for more than a half century, shows that awareness of the probability of an adverse event should also be important for decisionmakers. For unless the probability of a core meltdown is demonstrated to fall below some extremely low tolerance threshold, the risk to the public would be unacceptable despite the energy supply benefits.

The earthquake and subsequent tsunami-induced disaster at the Fukushima Daiichi Nuclear Power Plant on March 11, 2012, was a stark reminder that the residual risk of a core meltdown is not so low as to be purely academic. Yet it was after a fire at a first-generation nuclear facility in Northwest England in 1957 that the basic probabilistic principles of risk acceptability were originally developed for application to the nuclear industry. For public endorsement of nuclear power generation, the regulation of the nuclear industry requires that the probability of a serious nuclear accident must be extremely low. Regrettably, the aging 40-year-old Fukushima plant was designed and constructed before the use of probabilistic methods became widespread. Its design basis was deterministic, corresponding to what was perceived to be the maximum credible seismic shock. The notion of a deterministic design basis presupposed that this maximum level of earthquake could be determined accurately, which has proven to be too optimistic.

Dr. Gordon Woo is Chief Architect of Risk Management Solutions, Inc., Terrorism Risk Model and a regular lecturer at the North Atlantic Treaty Organization's Centre of Excellence–Defence Against Terrorism. Dr. Woo's experience in risk management is embodied in his Calculating Catastrophe *(Imperial College Press, 2011).*

Since the 1970s, the ideas of probabilistic risk assessment have spread from the nuclear industry to the safety-critical chemical, oil, and gas industries, and to critical rail, sea, and air transport infrastructure. In the late 1980s, facilitated by desktop computer power and motivated by poor underwriting loss experience, the ideas started to permeate the insurance industry for catastrophe risk management.[1]

Increasingly, over the past several decades, these ideas have interested government organizations.[2] The underlying rationale for an explicit probabilistic definition of risk is that it improves risk management, which is a key part of any organization's strategic management. An organization should make the effort and provide the resources to address the diverse risks associated with its activities. This involves identifying the risks and treating them to the best advantage of the organization, whether governmental, financial, commercial, or industrial.

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Whereas risk has been a central concept for thinking about nuclear safety issues for half a century, its relevance for thinking about national security has only emerged since the end of the Cold War, and especially since 9/11.[3] Specific, clearly identified threats, such as those once posed by the former Soviet Union, might be addressed as both certain and large in scale. These have been replaced by pervasive uncertainty over the sources of insecurity, which correspond to a complex range of different risks. The management of these diverse risks aims to contain or curtail security issues before they emerge. As with nuclear risks, prevention is best.

The classic post-9/11 paradigm for insecurity risk management is the Western intervention in Afghanistan, aimed at preventing Afghan territory from continuing to be exploited as a terrorist safe haven. The premise for such intervention is that it is riskier not to take military action. However, lack of clear danger to the homeland makes the link with national security more tenuous and speculative, and makes it harder to establish legitimacy and gather public support for military operations. Public support may not be necessary for interventions; those in Kosovo and Sierra Leone were met with public indifference. However, elected politicians take on an extra burden of responsibility if they decide on intervention without an adequate democratic mandate.

Another reason for adopting risk management concepts in security thinking is the recognition that risk management is a continuous process, lacking the definitive end point of conventional war campaigns. Wars are no longer winnable in the sense that the adversary is permanently off the battlefield. Thus the defeat of the Taliban in 2001 was not the end of post-9/11 Western involvement in Afghanistan—it was just the beginning. Following withdrawal from Afghanistan, an isolationist stance might seem attractive. However, as harsh a reality as this may be for the North Atlantic Treaty Organization (NATO), because of the interconnectedness of global geopolitics, Western nations cannot isolate themselves from conflicts in the developing world. Rogue states may become havens for international terrorism or organized crime, as well as sources of unwelcome and destabilizing refugee flows.

On the positive side, other military interventions in East Timor, Sierra Leone, and Kosovo have achieved a measure of success

sufficient to encourage Western engagement in future humanitarian military missions. For any past Western intervention, a retrospective risk analysis of the pros and cons of the action affords insight into the complex process of decisionmaking under extreme uncertainty and how decisionmaking might have been improved. For any future intervention, prospective risk analysis of the pros and cons of the action could help to shape decisions on the appropriate response. But these would have to take account of national financial constraints.

Financial Realism

Holistic risk management requires that due attention be accorded to the complete spectrum of risks to which an organization is exposed. The pioneering economic theorist Adam Smith wrote, "The first duty of a sovereign is that of protecting the society from the violence and invasion of other independent societies."[4] However, the cost of such protection is an obvious constraint. He added, "In a civilized society, as the soldiers are maintained altogether by the labor of those who are not soldiers, the number of the former can never exceed what the latter can maintain." National security cannot come at such a high military price that the nation's economic well-being is placed in jeopardy and its future capacity to fund military expenditure is weakened.

In the United States, the Government Accountability Office produces an annual list of risk management issues in the U.S. Government, including in the Department of Defense. As explained in the Quadrennial Defense Review, "Defense strategy requires making choices: accepting and managing risk is thus inherent in everything the Department does. Although difficult, risk management is central to effective decision-making and is vital to our success." The report recognizes the stark geopolitical reality that "Allies and both international and interagency partners are critical to success in meeting today's security challenges. Overseas, the inability or unwillingness of international partners to support shared goals or provide access would place additional operational risk on U.S. forces and would threaten our ability to prevail in current or future conflicts."[5]

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Of special significance among U.S. foreign defense alliances is the one with the United Kingdom (UK), which has closely supported the United States militarily in the Afghanistan and Iraq campaigns, and played a key NATO role in ousting Muammar Qadhafi in Libya. In the 2010 UK National Security Strategy,[6] the top priority of Her Majesty's Government was "protecting our people, economy, infrastructure, territory and way of life from all major risks that can affect us directly, and prioritizing actions beyond our borders to reduce the likelihood of a specific risk affecting the UK." In times of economic weakness and national indebtedness such as those that prevailed after the property boom and banking collapse of the first decade of the 21st century, the first priority in the Western world may well be restoring economic growth and reducing unemployment. Alongside this priority would be the defense of the homeland from attack by another state or from terrorists, state-sponsored or otherwise. Less of a national priority would be intervention in future foreign

conflicts on humanitarian grounds, unless national security was demonstrably at stake.

On an economic level, a risk perspective may make it harder to justify expenditure on future operations than would be the case if a state were confronted with a clear threat. Serving as a global police force may be affordable in prosperous economic times but would be difficult to justify in times of economic hardship. But decisions on intervention are never clear-cut and straightforward. Inaction may alter the regional geopolitics, reduce Western geopolitical influence, and precipitate a cascade of further conflicts. Turmoil and instability could lead to ethnic cleansing, civil war, and a large flux of refugees seeking new homes and livelihoods outside the affected region.

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Geopolitical Instability

The world is as far from being in a stable political equilibrium as ever in the past. Many countries are intrinsically prone to instability in that their boundaries do not conform to any obvious visible geographical logic; for example, river, lake, sea, or mountain. Some countries were artificially created by imperial powers, with citizens having natural loyalties at both substate and suprastate levels. Syria is a notable example of such an artificial country, which has only been maintained through harsh military rule by the Ba'ath Party and the authoritarian family leadership of Hafiz and son Bashar al-Asad, who have suppressed widespread opposition across the whole spectrum of Syrian society. The resentment of the majority Syrian population to minority rule by the political elite has led to several rebellions. A major insurrection in the early 1980s was brutally put down by Hafiz al-Asad. At that time, the question of Western intervention in the internal affairs of Syria never arose because Syria was a Cold War client state of the Soviet Union. Despite close ties between Russia and Syria that would resist any move toward United Nations (UN) military intervention, the direct involvement of Western powers to support a Syrian rebellion was an option from the start of political unrest.

Country by country, it is possible to identify factors that render a current state of political stability precarious. The fragmentation of a nation into independent smaller states may occur peacefully through the democratic process, but it may also be pressured by separatist movements that reinforce their claims for independence with acts of terrorism or threats of civil war. But any fragmentation increases the cumulative length of international borders, and so enhances the opportunities and excuses for international conflict. One of the pioneers of quantitative war research, Lewis Fry Richardson, investigated the propensity for conflict between neighboring states as a function of the length of their common frontier.[7] Where the smaller states have different ethnic, religious, or cultural traditions, outbreaks of hostilities may be quite common and severe. This was the case in the Balkans. After Josip Broz Tito's presidency of Yugoslavia, the communist Balkan state descended into a spasm of violent political turbulence including ethnic cleansing and horrendous war crimes, which forced prolonged and costly NATO intervention.

Much as a libertarian may abhor tyranny, the human rights repression of a subject

population by an authoritarian leadership may diminish the prospect of territorial partition or civil war, as with Yugoslavia in the past. In modern times, China has prioritized national sovereignty and geographical integrity above all else, being fearful of a recurrence of the calamitous provincial rebellions that brutally punctuated its history in previous centuries. Accordingly, in the UN, China stands with Russia resolutely against external military intervention in the internal affairs of states under even the most reprehensible dictatorial rule.

Future Instability

The Cold War has ended, and the threat of nuclear destruction has receded. But in its place is greater political instability within countries when rulers are unseated, either by force or by popular uprising. The classic act of destabilization is a sudden military coup. The problems that a coup may cause for Western powers are exemplified by the West African state of Mali, where a military coup took place in March 2012. The opportunity to further their separatist aims was seized by nomadic Tuareg insurgents, allied with Islamists tied to al Qaeda in the Islamic Maghreb (AQIM) and trained by Afghan and Pakistani militants.

The president of neighboring Niger, which has its own Tuareg population, has warned that if AQIM establishes a territory in Mali, it will claim territory across the whole of Africa and will try to reach into Europe. No Western government needs reminding that any foothold by al Qaeda may become a terrorist safe haven for attacking Western interests.

Rather like a virus, militant antidemocratic movements prey on vulnerable hosts to spread. Alternatively, internal rivalries between factions in a liberated country may trigger a bout of prolonged internecine violence, which may be exploited by terrorists, and further raise the prospect of external intervention. Recognizing the limitations of the UN in roles other than peacekeeping (where there is a peace to be kept), the intervention of NATO or its individual partners in a foreign conflict should always be an option.

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As shown by the use of Facebook in the Arab Spring, modern electronic tools for communication and information dissemination can rapidly fuel dissent movements and provoke and inflame collective mass mob violence with little warning. Political demonstrations can lead to rioting and confrontations with law enforcement officers, which may escalate to serious street violence and urban warfare. As if the current global political situation were not unstable enough, the inexorable growth in human populations in the developing world, coupled with incremental climate change, is forging an environment for increased conflict over land usage and water resources, as well as over civil rights of repressed populations.

The Precautionary Principle

The precautionary principle is often cited to assure the public, in environmental risk situations where decisions have to be made under great uncertainty, that its safety is paramount. In the absence of absolute proof of harmful potential, action may still be taken to eliminate a possible danger. Enshrined in environmental legislation, the precautionary principle was appropriated by the George W. Bush administration to matters of security

and introduced as an argument for regime change. Anticipatory self-defense is reflected in the Bush declaration, "If we wait for threats to fully materialize, we'll have waited too long."[8]

Adopting the precautionary principle, the price of safety may be expensive when the potential forgone benefits are fully taken into account. The money spent on the Iraq War in both the United States and United Kingdom could have brought substantial domestic social benefits. This has encouraged a Berkeley law professor, Daniel Farber, to introduce the so-called α-precautionary principle. The concept of α-precaution is aimed at avoiding the worst-case scenario that dominates practical application of the precautionary principle. It is more nuanced and involves precaution against losing the possible benefits of the best-case scenario. The user decides on the value for the optimism-pessimism weight parameter α, balancing the worst and best cases.

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According to Farber, the range of this weight parameter might be narrowed "by using empirical evidence showing how individuals approach decision making in situations characterized by ambiguity, or through experience over time that might allow officials to develop norms about the appropriate α."[9] The kind of situation Farber has in mind includes the use of nanotechnology, which offers potentially substantial societal benefits. Right now, guidance on the choice of the weight parameter is rather vague, except that it is intuitively a numerical gauge of optimism versus pessimism.

As evidenced in the overthrow of Saddam Hussein in Iraq, regime change can also be a blunt and costly security tool. In accord with Farber's α-precautionary principle, a more nuanced approach would be appropriate before forcible regime change is again countenanced. Interestingly, Farber himself has suggested a 90 percent optimism-pessimism weight parameter α in this political context;[10] that is, there would have to have been 90 percent confidence that Saddam had weapons of mass destruction for regime change to be sanctioned. This might be coined the "Berkeley doctrine," being far less hawkish and cautious than the extremely risk-averse Dick Cheney "1 percent doctrine": threats with even 1 percent likelihood must be treated as certainties. The stark disparity between individual confidence levels for justifying military intervention shows the value in a systematic risk management framework within which momentous decisions on national security are made, for example, halting the Iranian nuclear bomb program. This framework would explicitly and methodically account for the internal politics of Iran and the will of the populace for avoiding internal chaos.

Crisis situations, whether in the affairs of multinational corporations or nation-states, call for effective risk management. Where financial resources for handling crises are abundant and crises are comparatively infrequent, a short-term planning horizon may be adequate. Crises are dealt with as and when they materialize, with financial resources drawn from contingency funds. However, where resources are limited and crises are liable to proliferate, risk needs to be actively and systematically managed over a longer term.

Concerning foreign affairs, the destabilization of Arab dictatorships through popular

uprisings has increased the pressure for Western intervention in support of democracy. This has been happening at a time of deep budget cuts in the military across the Western alliance. The heavier military burden placed on the United Kingdom and France in the NATO campaign in Libya in 2011 might not have been politically sustainable in 2012 in the midst of a severe eurozone crisis and double-dip recession.

To meet the challenge of managing the risk of future foreign conflict intervention, what is required is a systematic approach to risk management of the kind that has been extensively developed over the past several decades for global catastrophe risk management. Within this methodology, scenarios for political unrest would be considered for all conflict zones, and approximate estimates made of the frequency and severity of conflicts. This allows future decisions on the extent of conflict intervention to be properly risk-informed and assessed, subject to the tight practical constraints of military and financial capability.

As an example of the way forward, the 2010 UK strategy review placed risk assessment and management methodology at the heart of British security and defense policy. A range of security threats and challenges were categorized and prioritized, befitting a struggling economy incapable of affording resources to cover every conceivable eventuality. Those threats perceived as combining high likelihood with high impact include an international military crisis involving Britain, a major accident or natural hazard, a cyber attack, and international terrorism.

Risk Matrices

With a country facing multiple sources of risk at any given time, some ready visualization of their characteristics would be instructive for decisionmakers. A risk matrix is a graphical means of representing the two principal attributes of a risk: its likelihood and its consequence. The size of the matrix can vary according to the resolution required. Figure 1 is a simple 6 x 5 matrix with "Likelihood" grades ranging downward from almost certain, to highly likely, to likely, to realistic possibility, to unlikely, to remote. Across the matrix rows, the "Consequence" grades range from insignificant to minor, to moderate, to major, to very significant. For any particular threat, its risk profile may span several grades of both likelihood and consequence. An example of a risk that is a realistic possibility and considered significant is a major influenza pandemic. A tornado strike on a town is an example of a risk that is highly likely with moderate consequence.

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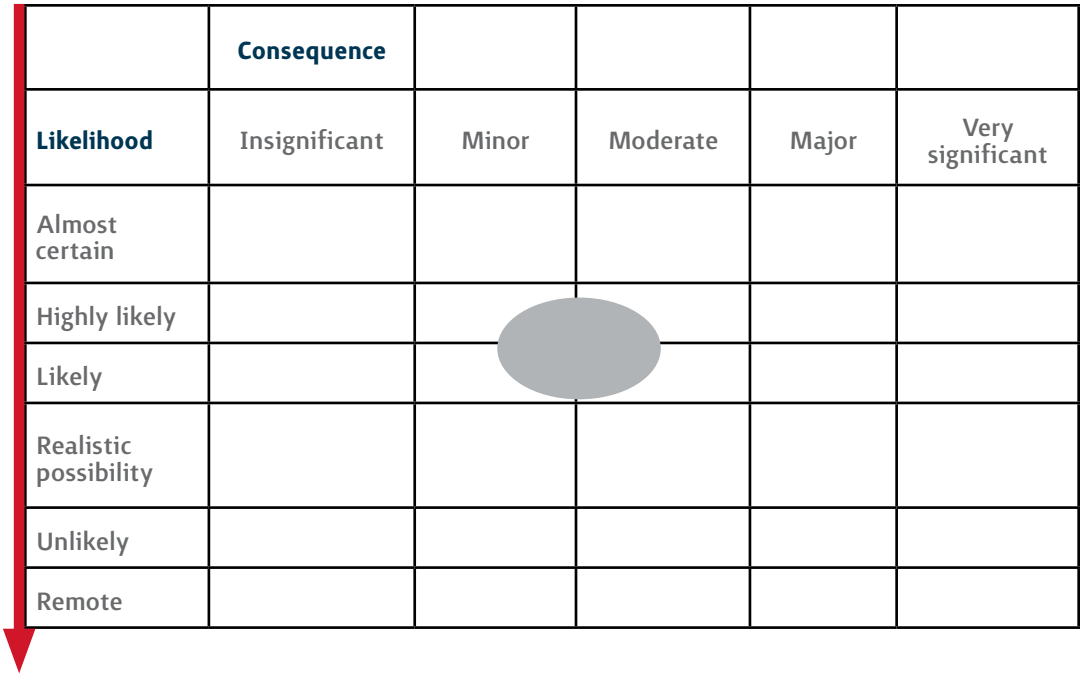
Consequence Analysis

With any extreme risk, the potential ramifications of a major initiating event lead to a proliferation of subevents that generate a complex event tree of possible consequences, direct and indirect. A simple graphic illustration of a tree is shown in figure 2. At each node, represented by a black dot, the actual path is indicated by a solid line, while hypothetical alternative paths are indicated by dashes.

In the worst catastrophes, an initiating event instigates a chain of consequences rather suggestive of Murphy's Law—whatever bad eventuality may happen does happen. The task of a risk analyst is to construct the principal

Figure 1. Risk Matrix



	Consequence				
Likelihood	Insignificant	Minor	Moderate	Major	Very significant
Almost certain					
Highly likely					
Likely					
Realistic possibility					
Unlikely					
Remote					

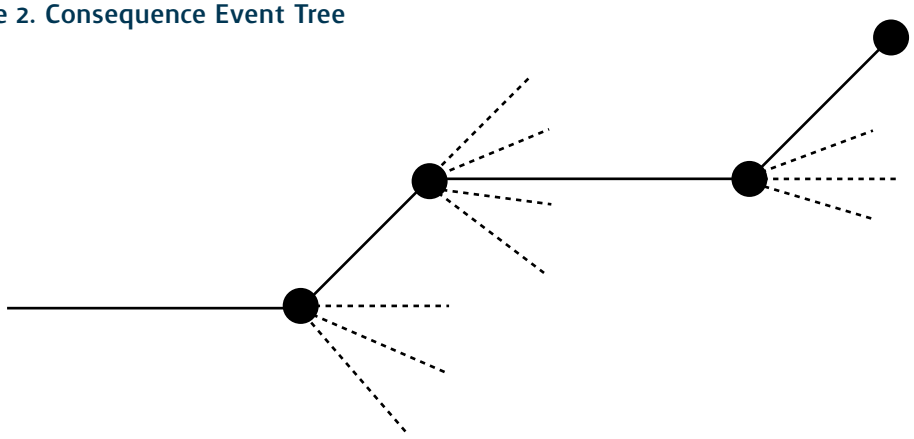
branches of an event tree to capture the key dynamics of what may result following an initiating event. For example, when Hurricane Katrina struck the gulf coast in August 2005, the force of the accompanying storm surge caused breaches in the New Orleans levee system, which led to deaths, massive flooding, property and infrastructure loss, a breakdown in law and order, looting, and a host of other problems.

When looting broke out soon after U.S. troops entered Baghdad in 2003, Defense Secretary Donald Rumsfeld remarked that "stuff happens." So it does. But it should not come as a major surprise that what is perceived to be the most likely outcome does not actually materialize. This is what risk management is about. A risk assessment for Gulf Coast hurricanes is not a matter of civic officials reaching a consensus as to what is most likely to happen. Instead, risk assessment has to explore a broad range of possible outcomes that is inclusive of the considerations of a wide range of views.

Of special importance is the requirement for a risk assessment to encompass pessimistic as well as optimistic views. In August 2005, Mayor Ray Nagin delayed the mandatory evacuation of New Orleans hoping that Hurricane Katrina might weaken or change direction so that would not be necessary.[11] Earlier, the director of the National Hurricane Center, Max Mayfield, had warned him that the gulf coast, and New Orleans in particular, were in grave danger. Both positions were tenable and would be reflected in a comprehensive risk assessment.

Given the large number of possible consequences, and the diverse range of views as to their occurrence, a risk analyst has to be prepared to deal with an event tree with

Figure 2. Consequence Event Tree



a proliferation of branches. Once the loss implications of the different branches have been assessed, it may be possible to prune the event tree of branches that are comparatively inconsequential, except that a risk analyst always has to watch for indirect, latent unintended consequences.

The Law of Unintended Consequences

The English word *disaster* has its origins in Latin, meaning "an unfavorable aspect of a star." Except for astrologists, disasters are no longer perceived fatalistically as predetermined. Yet the term *Act of God* is still used in insurance contract vernacular to describe a natural hazard event. As any hazard analyst knows from experience, forecasting the consequences of a natural hazard event is extremely challenging. An earthquake can cause a rockslide that can dam a river, which can cause flooding. At its best, consequence assessment is a recursive, chess-like exercise in depth of thinking. Anticipating all the consequences of an act of God would require an infinite mind. Following Hurricane Katrina, the Federal Emergency Management Agency provided the homeless with mobile shelters that turned out to be injurious to their health for toxicity reasons.

For a man-made disaster, originated by an intentional act of man, malevolent or otherwise, the inherent randomness in the evolution of events precludes foreseeing exactly what will happen. But just because effects are unintended does not mean that they may not be envisioned through diligent risk analysis aimed at identifying ignorance and error. A potentially more serious problem lies in willful blindness to unintended effects and the subsequent bias this entails.

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Within a military context, any campaign is liable to be beset by the law of unintended consequences. Regarding military operations, randomness plays a substantial role in the evolution of high-risk situations. This is reflected in the adage that no plan survives first contact with the enemy. This is why there has to be a series of backup plans, allowing for the

most conceivable operational eventualities. An excellent example of operational planning with foresight of unintended consequences was the May 2011 raid on the compound of Osama bin Laden in Abbottabad, Pakistan.[12] A great strength of the planning process, which contributed to the success of the operation, was its explicit use of risk management techniques. A red teaming exercise explored in detail what could go awry. A number of key likelihood factors were elicited from senior operations staff, including the possibility that bin Laden was not actually there. Also, the negative impact on U.S.-Pakistan bilateral relations was figured in.

Likelihood Assessment

To locate each identified threat on the risk matrix, it is necessary to gauge its likelihood. The six grades that span the credibility range are: almost certain, highly likely, likely, realistic possibility, unlikely, and remote. Other qualifiers may be chosen, and the number of grades may be varied, but this happens to be the particular selection of UK Defense Intelligence.[13] This comparatively coarse level of resolution is commensurate with the available data and purpose of a likelihood assessment.

in reviewing the past record of foreign conflict intervention, it is instructive to include near-misses

The concept of probability had its origins in games of chance, such as throwing dice, where the odds are objectively defined and may be verified through multiple repetitions of a game. If a player is dubious about the fairness of dice, he can throw them a large number of times to check. But there are numerous situations that call for an assessment of odds where repetitions are just not possible. Political risk situations are typically one-off, without close precedents, and inevitably there is a significant degree of individual subjectivity in the assessment of likelihood. A merit of quantitative methods for risk assessment is the transparency in explicitly exposing subjectivity and latent bias among political risk analysts.

In probabilistic risk analysis, procedures have been devised for eliciting expert judgments on probability assignments. To minimize bias of any one expert, a panel of experts is customarily convened. This accords with the "Wisdom of Crowds" principle[14]—the average estimate of a number of informed people might be more reliable than that of any one individual. It is important that a panel should encompass the breadth of informed opinion and not be drawn from a particular narrow clique. Calibration techniques also exist to check on the performance of individual panel members, whose opinions may be distorted by subjective biases such as cognitive dissonance.

One of the clear advantages of a methodical approach to assessing probabilities is that their combination can be handled in a consistent and rigorous manner using the calculus of probabilities. Suppose a major political event is contingent on events A and B both occurring and on event C not happening. Then, assuming event independence, the probability of the major political event is the product of the event A and B probabilities, multiplied by the complement of the probability of event C. Psychologist Daniel Kahneman has shown that people are generally not adept at figuring out this kind of mental arithmetic and can easily make basic errors.[15] This makes a formal probabilistic approach more compelling. In this regard, Bruce Bueno de Mesquita

has shown how probability calculus can be applied methodically and used effectively to make better predictions of critical political events than teams of experienced international security analysts can.[16] This is possible where events can be analyzed in terms of contingencies, such as the composition of a ruling elite and the preference and power of individual members.

Counterfactual Scenario Analysis

In assessing risk for the future, risk analysts use the historical record for validation. Historical disasters tend to be treated statistically as fixed events, although in reality there is a large luck element involved in converting a near-miss crisis situation into a disaster statistic. In August 2011, Hurricane Irene's threat to New York City forced Mayor Michael Bloomberg to order the evacuation of low-lying areas. Fortunately, the hurricane weakened during its approach to New York; otherwise, massive economic loss would have resulted. In reviewing the past record of foreign conflict intervention, it is instructive to include within any historical study a discourse on "near-misses," where opportunities for intervention were considered but ultimately not taken. The forced demise of Qadhafi in Libya has heightened the fears of Robert Mugabe that he might at last be ousted from his assumed life presidency of Zimbabwe. An interventionist may speculate how different southern Africa might have become had this dictator been deposed. A counterfactual analysis of conflict history explores the broad range of intervention possibilities that help define the overall framework for intervention risk assessment.

Despite their significance for hazard assessment, near-misses tend not to be accorded the level of risk perception they merit: actual moderate loss events are far more memorable than near-miss major losses. But from a scientific perspective, the past is just one realization of a variety of possible evolutions of history that may be analyzed through consideration of a large array of possible counterfactual scenarios, which might have arisen but for chance. In any natural or man-made hazard context, there is a random component equivalent to dice being rolled to decide whether a near-miss becomes an actual disaster. The fact that there may be no observed disaster over a period of time may belie the occurrence of numerous near misses. This may be illustrated using the basic dice paradigm. Suppose a die is rolled every month for a year, and an event is recorded if a six is thrown. Then there is still an 11 percent chance (the twelvefold product of 5/6) of no events occurring during the year.

An intriguing application of counterfactual scenario analysis is to the terrorist plots against the U.S. homeland in the decade after 9/11. For each of these plots, it is possible to estimate the chance that the plot would not have been interdicted, and then the likelihood that, had it not been interdicted, it would have been successful in causing a significant loss. The combined probability is highest for the noninterdicted aviation bomb plots of Richard Reid and Umar Farouk Abdulmutallab, and the Times Square vehicle bomb plot of Faisal Shahzad. But there are more than two dozen other meaningful plots to take into account.

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Aggregating the probabilities over the entire decade, the expected number of successful damaging plots is about four. This is the effective number of bullets that the United States has dodged in keeping a clean counterterrorism slate since 9/11, and is a numerical measure of the payoff for counterterrorism expenditure.

Global Conflict Risk Management

Political risk insurers geographically diversify their portfolios of risks around the world so as not to have an excessive risk concentration in any individual region. Accordingly, they have to be adept at the global management of political risks. This involves an assessment of the frequency of major conflicts, and their financial loss consequences. In order to make this assessment, political risk insurers need informed political briefings from around the world, which are received from specialist political risk think tanks and international relations experts.

The regional clustering of political turbulence, such as that induced by the Arab Spring, stresses the robustness of the political risk management of insurers. To ensure solvency, an insurer must have enough resources to pay claims as they arise. One actuarial tool for assessing future ability to pay claims over an uncertain future is dynamic financial analysis (DFA). This involves simulating the loss impacts of a wide variety of future scenarios. Each scenario is associated with a relative likelihood by an expert group of risk analysts. As far as possible, evidence-based methods for the assignments are used. The loss implications of each scenario are evaluated by experienced insurance loss assessment teams. Aggregate loss frequency analysis of the entire scenario dataset makes it possible to estimate the overall chance of insolvency, which must be low enough to fall below a strict regulatory criterion.

Just as a political risk insurer has to be diligent about having sufficient resources to pay for future claims, a prudent government may manage global conflict risk intervention so as to have resources available to meet the demand for crucial interventions as the need arises. A comparable scenario simulation exercise for this purpose might be named dynamic intervention analysis (DIA).

No insurance risk manager would consider as adequate a plan to pay claims ex-post, merely on an ad hoc contingency basis, without the forward risk foresight of a DFA. Similarly, the adoption of a DIA methodology would assist conflict risk managers in planning ahead for military, civilian, and financial resource demand in a highly uncertain political future. As an example of the insights to be drawn from a DIA, military and civilian resource requirements of manpower and equipment can be better gauged with reference to simulated future conflict bottlenecks. A feature of such bottlenecks is the draining of significant logistical support in just a few key conflicts, requiring an extended call on military reservists.

The rationalist approach to making decisions underlying a DIA has been queried by psychologists like Gary Klein, who has extensively studied the decision actions of U.S. military personnel in the field.[17] But in contrast with short-term battlefield decisions, which require instantaneous reflex decision reactions owing more to trained intuition than to rational thought, long-term planning decisions, with time horizons of years rather than hours, demand careful and considered study and analysis of the kind advocated here.

Conclusions

To the extent that war has evolved from a battlefield conflict limited in time and space to a continuous exercise in global risk management, Western intervention in future foreign conflicts should be predicated on a duly diligent global risk assessment. As with international economic risk management in general, decisions should not be swayed unduly one way or another by the short horizon 4-year political electoral cycle.

The various pros and cons of military intervention need to be carefully weighed, taking into account constraints of budget and the prospect of further resource demands. Intervention fatigue, like donor fatigue after natural disasters, has to be managed. Reliance on contingency funds to pay for billions of dollars of intervention costs is a practical expedient suited for times of greater economic prosperity and stable military budgets. In harder economic times, such funds may be more urgently needed to relieve the burden of national indebtedness and reduce unemployment.

There are various management approaches to conducting a medium-term risk assessment. A precautionary approach for nonexistential threats may be difficult to support in times of financial stringency. Qualitative approaches involving expert scenario analysis will always be essential for gauging future conflict prospects. But an expedient auxiliary guide to allocating resources for future interventions is a quantitative risk assessment. This will give decisionmakers better insight into the complexities of foreign conflict intervention, in particular a greater depth of vision in the thick fog of uncertainty. PRISM

Notes

[1] Gordon Woo, *Calculating Catastrophe* (London: Imperial College Press, 2011).

[2] John Beddington, *Blackett Review of High Impact Low Probability Risks* (London: UK Government Office for Science, 2012).

[3] Christopher Coker, *War in an Age of Risk* (London: Polity, 2009).

[4] Paul Cornish and Andrew Dorman, "Dr. Fox and the Philosopher's Stone: The Alchemy of National Defence in the Age of Austerity," *International Affairs* 87, no. 2 (2011), 335–353.

[5] *Quadrennial Defense Review Report* (Washington, DC: Department of Defense, February 2010).

[6] Timothy Edmunds, "British Civil-Military Relations and the Problem of Risk," *International Affairs* 88, no. 2 (2012), 265–282.

[7] Lewis Fry Richardson, "The Problem of Contiguity," appendix, in *Statistics of Deadly Quarrels*, *Yearbook of the Society for General Systems Research*, vol. VI (Pittsburgh: The Boxwood Press, 1960), 139–187.

[8] President George W. Bush, speech at United States Military Academy, West Point, New York, June 1, 2002.

[9] Daniel Farber, "Uncertainty," *The Georgetown Law Journal* 99 (2011), 901–959.

[10] Daniel Farber, "Uncertainty," talk given at the Environmental Law and Policy Review Conference, Washington, DC, April 13, 2012.

[11] *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina* (Washington, DC: Government Printing Office, 2006), 108.

[12] Peter L. Bergen, *Manhunt: The Ten-Year Search for Bin Laden—From 9/11 to Abbottabad* (New York: Crown, 2012).

[13] David Omand, *Securing the State* (London: Hurst & Co., 2010).

[14] James Surowiecki, *The Wisdom of Crowds* (New York: Abacus, 2005).

[15] Daniel Kahneman, *Thinking, Fast and Slow* (New York: Random House, 2011).

[16] Bruce Bueno de Mesquita, *Predictioneer: One Who Uses Maths, Science and the Logic of Brazen Self-interest to See and Shape the Future* (London: Bodley Head, 2009).

[17] Gary Klein, *Sources of Power: How People Make Decisions* (Cambridge, MA: MIT Press, 1999).